



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,362	09/28/2006	Klaus Endres	P30186	8426
7055 7590 03/05/2009 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER LI AIQUN				
ART UNIT 4151		PAPER NUMBER		
NOTIFICATION DATE 03/05/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/587,362

Applicant(s)

ENDRES ET AL.

Examiner

AIQUN LI

Art Unit

4151

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/DE)
Paper No(s)/Mail Date See Continuation Sheet
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :Dec 11, 2006
Jan 14, 2008, and Jun 26, 2008.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11-27 are rejected 35 U.S.C. 102(b) as being anticipated by Schmidt (US Patent No. 6287639 B1, thereof Schmidt 639).
3. Regarding to claim 11, Schmidt 639 teaches a silane composition for molded articles (Examples 3, 6, 7, 12) and consolidating (col. 5, line 33) substrate, comprising at least one of porous materials such as sand and clay (col. 2, line 11-13), wherein the silane comprises at least one of a hydrolysate (col. 3, line 59-60) and a precondensate (col. 3, line 56-59) of (a) one or more silanes of formula(I) R_xSiA_{4-x} (col. 1, line 9-18), wherein the radicals R independently represent non-hydrolysable groups (col. 1, line 13-15), the radicals A independently represent hydrolysable groups or hydroxyl groups (col. 1, line 12-14), x is 0,1,2 or 3, and $x \geq 1$ in at least 50 mol % of the silane, which reads on the claim.
4. Regarding claim 12, Schmidt 639 teaches radicals X comprise one or more radicals selected from halogen (col. 2, line 35), alkoxy (col. 2, line 36) and acyloxy (col. 2, line 39) groups.
5. Regarding claim 13, Schmidt 639 teaches the radicals X comprises one or more radicals selected from C_{2-4} alkoxy groups (col. 2, line 36).

6. Regarding claim 14, Schmidt 639 teaches the radicals R comprise one or more radicals selected from C₁₋₄ alkyl groups (col. 2, line 59) and aryl groups (col. 2, line 62).
7. Regarding claim 15, Schmidt 639 teaches the radicals R comprise one or more radicals selected from methyl and ethyl (col. 2, line 59).
8. Regarding claim 16, Schmidt 639 teaches the radicals R comprise a phenyl group (col. 2, line 63).
9. Regarding claim 17 and 18, Schmidt 639 teaches the silanes comprises one or more of methyltriethoxysilane, phenyltriethoxysilane, and tetraethoxysilane (col.3, line 30, and Example 1), which reads on the claimed components.
10. Regarding claim 19, Schmidt 639 teaches at least one of the hydrolysate and a precondensate (col. 3, line 56-60) has been prepared in the presence of additives (col. 2, line 23-24, and claim 6) such as metal alkoxides (col. 4, line 19-20 and claim 7, "curing catalyst"), selected from aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed formula and group.
11. Regarding claim 20, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed group.
12. Regarding claim 21, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed group.
13. Regarding claim 22, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides, zirconium alkoxides (col. 4, line 21-22), or

sodium methoxide or potassium acetate (col. 4, line 26) which reads on the claimed group.

14. Regarding claim 23, Schmidt 639 teaches the silane has been prepared under a sol-gel process (col. 2, line 24-25) using a substoichiometric amount of water relative to hydrolysable radicals (claim1(1)).

15. Regarding claim 24, Schmidt 639 teaches a solution which comprises the silanes (col. 1, line 21 and col. 4, line 32 "a viscous sol").

16. Regarding claim 25, Schmidt 639 teaches a process for preparing a consolidated molded article (col. 5, line 37, and Examples 3, 6, 7, 12) comprises mixing an inorganic compound (col. 4, line 65, col. 2, line 11-13, "sands and clays" and Example 12) with the silane (col. 4, line 65-66) and thereafter curing the silane composition (Examples 1-4), which reads on the claim.

17. Regarding claim 26, Schmidt 639 teaches prior to being combined with the material the silane is activated by adding water (col. 4, line 61-62).

18. Regarding claim 27, Schmidt 639 teaches a consolidated molded article obtainable by the claimed process (Example 3, 7, and 12).

19. Claims 11, 17 and 18 are rejected 35 U.S.C. 102(b) as being anticipated by Schmidt (US Patent No. 6378599 B1, thereof Schmit 599).

20. Regarding claim 11, Schmit 599 teaches a silane composition (col.1, line 4, "binder") for molded articles (col. 3, line 56) and consolidating sands (Examples 1,2) and inorganic particles (col.3, line 11), wherein the silane composition comprises at

least one of a hydrolysate (col.2, line 59-60) and a precondensate (col.2, line 56-60) of (a) one or more silanes of formula(I) R_xSiA_{4-x} (col. 1, line 8-10), wherein the radicals R independently represent non-hydrolysable groups (col.1, line 13-15), the radicals A independently represent hydrolysable groups or hydroxyl groups (col.1, line 11-13), x is 0,1,2 or 3, and $x \geq 1$ in at least 50 mol % of the silane, which reads on the claim.

21. Regarding claim 17, Schmit 599 teaches the silane comprises methyltriethoxysilane, phenyltriethoxysilane and tetraethoxysilane (Example 1), which reads on the claimed components.

22. Regarding claim 18, Schmit 599 teaches the silane comprises methyltriethoxysilane, phenyltriethoxysilane and tetraethoxysilane (Example 1).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

25. Claims 28, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Espin (US Patent No. 6513592 B2) in view of Schmidt 639(US Patent No. 6287639 B1).

26. Regarding claim 28, Espin teaches a process for consolidating sand formations (Espin, claim1) comprises injecting a consolidation system into the formation (Espin, col.2, line 47-48, and claim 1) and curing thereof (Espin , col. 3, line 30). Espin further teaches the consolidation system is a fluid suspension of nanoparticles as disclosed in PCT/EP97/06370 (Espin, col. 3, line 18-19).

27. Espin does not teach the agent of claim 11 as claimed.

In the same field of endeavor, Schmidt 639(US Patent No. 6287639 B1) is the English equivalent of PCT/EP97/06370, and teaches the agent as claimed in claim 11.

It would have been obvious for a person of ordinary skill in the art to inject the agent of claim 11 into the formation and curing thereof for the benefit of consolidating sand formations, because Espin specifically teaches the particles of Schmidt 639.

28. Regarding claim 29, Espin teaches the formation is a sand formation bearing hydrocarbon (Espin, col. 2, line 22-23), which reads on the claim.

29. Regarding claim 30, Espin teaches the process for consolidating a sand formation comprise introducing nanoparticles comprising an inorganic component and

silanes (Espin, col.3, line 8, 16) into channels (Espin, col. 3, line 39-42, "between grains" and "capillary forces", and Fig 2), which reads on the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736.

The examiner can normally be reached on Monday -Thursday, 8:30 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571)2721206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A.L./

/Angela Ortiz/

Supervisory Patent Examiner, Art Unit 4151